UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/774,685	02/01/2001	Yutaka Yamanaka	1538.1009/JDH	3647

21171	7590	08/02/2004

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EXAMINER
TANG, KUO LIANG J

ART UNIT	PAPER NUMBER
2122	

DATE MAILED: 08/02/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

PTO-90C (Rev. 10/03)

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE _3_ MONTH(S) FROM
THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed
  after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any
  earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on _29 April 2004_.

2a)☐ This action is **FINAL**.   2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is
closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) _1-18_ is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) _1-18_ is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All   b)☐ Some * c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage
application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☐ Notice of References Cited (PTO-892)

2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3)☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
    Paper No(s)/Mail Date _____.

4)☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____.

5)☐ Notice of Informal Patent Application (PTO-152)

6)☐ Other: _____.

DETAILED ACTION

1.   This Office Action is in response to the amendment filed on 4/29/2004.

The priority date for this application is 10/05/2000.

Claims 1-9 and 13-15 have been amended and Claims 1-18 are pending and have been

examined.

Claims 1- 18 remain rejected under 35 U.S.C. 103(a) as being unpatentable over OpenMP

Architecture Review board, "OpenMP Fortran Application Program Interface", Version 1.1-

november-1999 (hereinafter OpenMP), in view of Iwasawa et al. US Patent No. 5,151,99

(hereinafter Iwasawa)

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in
> section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are
> such that the subject matter as a whole would have been obvious at the time the invention was made to a person
> having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the
> manner in which the invention was made.

2.   Claims 1- 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over OpenMP

Architecture Review board, "OpenMP Fortran Application Program Interface", Version 1.1-

november-1999 (hereinafter OpenMP), in view of Iwasawa et al. US Patent No. 5,151,99

(hereinafter Iwasawa)

As Per Claim 1, OpenMP discloses the method that covering the steps of:

"detecting a parallelization directive in said source program;;" (E.g., see page 9, Figure

and associated text, e.g., in particular see page 9, last paragraph, which states "When a thread

encounters a parallel region, …").

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!$OMP PARALLEL [clause[[,] clause]...]

block

!$OMP END PARALLEL
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OpenMP teaches a well known FORTRAN structure for Parallel region construct

contains such list structure(E.g. PROVATE(list), SHARE(list) of pg. 9). OpenMP doesn't

explicitly disclose if said parallelization directive is detected, generating a front-end intermediate

language. However, Iwasawa teaches directive (E.g. see Col. 1:22-23) and "the parallel

execution of each iteration of the loop is detected using FORTRAN language" (E.g. see col.

2:19-29); if said parallelization directive is detected, generating a front-end intermediate

language (E.g., see FIG. 1, 3, intermediate language) for said parallelization directive by

positioning on a storage region, each processing code of at least part of the parallelization

directive with a hierarchical structure(E.g., see FIG. 5) in accordance with an internal structure of

said parallelization directive." (E.g., see FIG. 13, PROCESSOR 1 to PROCESSOR NPE).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention

was made incorporate the teaching of Iwasawa into the system of OpenMP, to generate a front-

end intermediate language. The modification would have been obvious because one of ordinary

skill in the art would have been motivated use a well known data structure (list) particularly for the same programming language, FORTRAN, to take the advantages of the well known defined structure for the parallelization compile method and system.

As Per Claim 2, the rejection of claim 1 is incorporated and further the combination of OpenMP and Iwasawa teaches

"a step of adding to said front-end intermediate language of a statement to which the parallelization directive is applied, reference information from said front-end intermediate language of said statement to which the parallelization directive is applied, to said front-end intermediate language for the parallelization directive." (E.g., see Iwasawa, FIG. 5 & 6 and col. 6:11-27).

As Per Claim 3, the rejection of claim 1 is incorporated and further the combination of OpenMP and Iwasawa teaches

"a step of, by using a processing table which stores one or a plurality of items of processing information for each of said processing codes, acquiring the processing information corresponding to a current processing content based on said processing code within the front-end intermediate language for said parallelization directive." (E.g., see Iwasawa, FIG. 5 & 6 and col. 6:11-27, loop table).

As Per Claim 4, the rejection of claim 3 is incorporated and further the combination of OpenMP and Iwasawa teaches

"current processing content is one of type analysis, syntactic analysis, semantic analysis,

and generation of a compiler intermediate language." (E.g., see Iwasawa, FIG. 3, blk 13

(PARSING) & 6 (INTERMEDIATE LANGUAGE) and col. 5:55-67 to 6:1-10).

As Per Claim 5, the rejection of claim 1 is incorporated and OpenMP teaches "said

hierarchical structure is a list structure." (E.g., see pg. 9-11, Section 2.2 Parallel region

construct).

As Per Claim 6, the rejection of claim 1 is incorporated and OpenMP teaches "a

directive, a clause, and a line, and a processing code for said directive is linked downward to a

processing code for said clause, and said processing code for said clause is linked downward to a

processing code for said lines." (E.g., see pg. 11-14, Section 2.3.1; pg. 17-18, Section 2.4.1 and

pg. 25-29, Section 2.6.2).

As Per Claim 7, this is a method version of the claimed storage medium of Claim 1.

Thus, the rejection as set forth in Claim 1 also applied.

As per Claims 8-10, recite such claimed limitations which also have been addressed in

Claims 2-4, respectively.

As per Claims 11-12, recite such claimed limitations which also have been addressed in

Claims 5-6, respectively.

As Per Claim 13, this is an apparatus version of the claimed storage medium of Claim 1. Thus, the rejection as set forth in Claim 1 also applied.

As per Claims 14-16, recite such claimed limitations which also have been addressed in Claims 2-4, respectively.

As per Claims 17-18 recite such claimed limitations which also have been addressed in Claims 5-6, respectively.

Conclusion

3.   Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kuo-Liang J Tang whose telephone number is 703-305-4866. The examiner can normally be reached on 8:30AM - 5:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tuan Dam can be reached on 703-305-4552. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Kuo-Liang J. Tang

Software Engineer Patent Examiner

ANTONY NGUYEN-BA
PRIMARY EXAMINER